



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Metropolitan Boston – Northeast Regional Office

MITT ROMNEY
Governor

KERRY HEALEY
Lieutenant Governor

ELLEN ROY HERZFELDER
Secretary

EDWARD P. KUNCE
Acting Commissioner

MODIFIED WATER WITHDRAWAL PERMIT
MGL c 21G

This Modified Permit is issued pursuant to the Massachusetts Water Management Act (the "Act") for the sole purpose of modifying the terms and conditions governing the withdrawal of water authorized herein. This Modified Permit conveys no right in or to any property beyond the right to withdraw the volume of water for which it is issued.

PERMIT NUMBER: 9P-3-17-213.01

RIVER BASIN: Ipswich

PERMITTEE: Town of North Reading
Town Hall
235 North Street
North Reading, MA 01864

ORIGINAL ISSUANCE DATE: February 15, 1991

MODIFICATION DATE: May 19, 2003

EXPIRATION DATE: August 31, 2009

NUMBER OF WITHDRAWAL POINTS:

Groundwater: 6

Surface Water: 0

USE: Public Water Supply

DAYS OF OPERATION: 365

LOCATIONS:

<u>Source</u>	<u>Source Code</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Location</u>
Lakeside Blvd. Well #2	3213000-02G			Lakeside Blvd.
Lakeside Blvd. Well #3	3213000-03G			Lakeside Blvd.
Lakeside Blvd. Well #4	3213000-07G			Lakeside Blvd.
Central St. wells	3213000-04G			Central Street
Route 62 wells	3213000-01G			Route 62
Route 125 well	3213000-05G			Route 125

This information is available in alternate format. Call Aprel McCabe, ADA Coordinator at 1-617-556-1171.

205A Lowell St. Wilmington, MA 01887 • Phone (978) 661-7600 • Fax (978) 661-7615 • TTD# (978) 661-7679

DEP on the World Wide Web: <http://www.mass.gov/dep>

Printed on Recycled Paper

SPECIAL CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

This Modified Permit authorizes the withdrawal of water for the purpose of serving the businesses, schools, municipal facilities, institutions and residences in the Town of North Reading (the "Town" or "North Reading") at the rate described below on average over a calendar year. The volume reflected by this rate is in addition to the 0.96 million gallons per day (mgd) previously registered to the permittee through the Water Management Act Program. The Department of Environmental Protection (the "Department" or "DEP") will use raw water volumes when assessing compliance with the volumes authorized by the Town's Registration and this Modified Permit.

The permitted volume is expressed in millions of gallons, both as an average daily withdrawal rate per year, and as a total annual withdrawal volume for each period of the Modified Permit term.

Withdrawals are authorized as follows:

			Daily Average (MGD)	Total Annual (MGY)
Period One				
Years 2-5	2/15/1991	to 8/31/1994	0.15	54.75
Period Two				
Years 6-10	9/1/1994	to 8/31/1999	0.15*	54.75
Period Three				
Years 11-15	9/1/1999	to 5/18/2003	0.20	73.00
Period Four				
Years 16-20	5/19/2003	to 8/31/2009	0.15*	54.75

*Because actual water withdrawals have been significantly below allocated numbers and since there is insufficient water available at this time in the basin to support increased withdrawals, the Department held the Town's permitted withdrawal volumes throughout the remainder of this permit to the volume originally allocated for Period One.

If for any year beginning with calendar year 2004, the Town exceeds its total authorized volume of 1.11 mgd on an average annual daily basis, on or before March 1st of the following year, the Town shall submit to the Department for its review and approval a plan and schedule for implementing a water bank. Thereafter, the Town shall implement the water bank as approved by the Department.

At a minimum, this water bank shall provide for conserving at least two gallons of water within the basin for every gallon of water demand added to the system. This water bank requirement applies even if the Town exceeds its total authorized volume on an average annual daily basis by an amount that is less than the threshold volume. If the Town exceeds its total authorized volume on an average annual daily basis by more than the threshold amount, the Town will be in violation of the Water Management Act and this Modified Permit.

2. Maximum Authorized Daily Withdrawal Volume

Withdrawals from individual withdrawal points are not to exceed the approved maximum daily volume listed below without specific advance written approval from the Department.

Source	Source Code	Daily Rate in Million Gallons per Day (MGD)	
Route 62 Wells	3213000-01G	*	
Lakeside Blvd. #2	3213000-02G	}	0.90 combined
Lakeside Blvd. #3	3213000-03G		
Lakeside Blvd. #4	3213000-07G		
Central Street Wellfield	3213000-04G	0.40	
Route 125 Well	3213000-05G	0.19	

*To prevent drawdown to the Town of Wilmington's Salem Street well, the 24-hour approval rate is 350 gpm (0.5 mgd) and average daily withdrawal over a full month is restricted to 0.40 mgd for the combined total of the Route 62 wells (also known as the Railroad Bed wells).

3. Zone of Contribution (Zone II or Zone III) Delineations

Department records show that the Route 62 Wells (3213000-01G), Lakeside Blvd. Wells 2, 3, and 4 (3213000-02G, 3213000-03G, & 3213000-07G) Central Street Wells (3213000-04G) and Route 125 Well (3213000-05G) have a DEP approved Zone II delineation. Therefore, no further Zone II work is required as a condition of this Modified Permit.

4. Wellhead Protection

The Town has adopted a Groundwater Protection District bylaw that meets the requirements of 310 CMR 22.21(2). On or before August 16, 2003 the Town shall submit to the Department a copy of the 1995 (or more recently adopted, if applicable) aquifer protection district map referenced in the bylaw. In addition, our records indicate that the Town has not implemented a floor drain bylaw. The Town shall submit a floor drain regulation, developed through the Board of Health, or a bylaw adopted by Town meeting, to the Department for review and approval by December 1, 2003, prior to being finalized by the Board of Health or adoption at Town meeting. The floor drain regulation once approved by the Board of Health or the bylaw approved by Town meeting shall be submitted to the Department within 30 days of adoption.

5. Streamflow Triggers and Outside Water Use Restrictions

Beginning on June 1, 2003, the Town shall implement the Required Actions identified in the following table whenever streamflow falls below the levels identified for three consecutive days as measured at the USGS Stream gauge noted.

Period	Streamflow Trigger (3 consecutive days below threshold)	Flow Volume (USGS South Middleton Gauge Station 01101500)*	Required Action
May 1 st thru September 30th	<0.56 cfsm	<24.9. cfs	Public Notice for Voluntary Water Restrictions
May 1 st thru September 30th	< 0.42 cfsm	<18.7 cfs	Implementation of Mandatory Water Restrictions

cfsm = cubic feet per second per square mile

cfs = cubic feet per second

* The streamflow thresholds set forth above are the daily mean streamflows recorded at the applicable USGS gauge. Should the reliability of flow measurements at the South Middleton Gauge Station be so impaired as to question its accuracy, the Modified Permit holder may request for the Department's review and approval that the trigger mechanism be transferred to the USGS Ipswich Gauge #01102000. The implementation of restrictions will be triggered by the same cfsm values that translate to a flow of 70 cfs for voluntary restrictions, and 52.5 cfs for mandatory restrictions. Should the Department become aware of concerns about the reliability of either gauge, it may upon immediate notification to the Modified Permit holder transfer the measurement point to an alternate gauge. The Department reserves the right to require use of a different gauge.

Both Required Actions, voluntary or mandatory restrictions, require the filing of a public notice that must appear at a minimum in a local newspaper within 5 business days of the date that the required action is triggered. A copy of each notice as published must be forwarded to the Department within 10 business days of publication. Each notice shall at a minimum include:

1. the streamflow value triggering the required notification;
2. the need to limit water use, especially nonessential outside water use, to protect streamflow for aquatic life and to ensure a sustainable drinking water supply;
3. ways individual homeowners can limit water use, especially nonessential outside water use; and
4. in the case of mandatory restrictions, a detailed description of the restrictions and the penalties for violating the restrictions.

At a minimum, mandatory restrictions shall limit nonessential outside water use to hand held hoses only and include hourly restrictions on nonessential outside water use. At a minimum, hourly restrictions shall avoid water use during the hours 9 a.m. to 5 p.m. when evapotranspiration rates are typically the highest. Notwithstanding the foregoing, irrigation of public parks and recreational fields by means of automatic sprinklers equipped with moisture sensors or similar control technology may also be permitted outside of the hours 9 a.m. to 5 p.m. For purpose of this Modified Permit, the term nonessential outside water use is defined to include those uses that do not have health or safety impacts, are not required by regulation and are not needed to meet the core functions of a business or other organization. The Town shall have the authority to enforce mandatory restrictions, including the authority to assess penalties or impose fines for violations.

The Town shall implement, and in the case of mandatory restrictions, enforce the restrictions until streamflow exceeds for seven consecutive days the applicable streamflow threshold set forth in the table above.

In order to evaluate the effectiveness of the restrictions on nonessential outside water use, the Department requires that the Town submit with the Annual Statistical Report, a report documenting all actions taken by the Town to implement and enforce the restrictions on nonessential outside water use, including without limitation the dates the restrictions on nonessential outside water use were in place, the streamflow threshold that triggered the

restrictions, the restrictions imposed and the Town's efforts to enforce the restrictions including the names and addresses of those against whom action was taken and any fines or penalties imposed.

6. Ipswich River Basin Performance Standards

Beginning calendar year 2004, North Reading shall meet the following performance standards ("the Ipswich River Basin Performance Standards").

Performance Standard for Unaccounted for Water

Unaccounted for water shall not exceed 10% overall water use.

North Reading's Annual Statistical Report shall provide a detailed assessment of its unaccounted for water. Unaccounted for water is defined by the Massachusetts Water Resources Commission as the difference between water pumped or purchased and water that is metered or confidently estimated. Unaccounted for water shall include water that cannot be accounted for due to meter problems, unauthorized hydrant openings, unavoidable leakage, recoverable leakage, illegal connections, stand pipe overflows and fire protection.

The need for water main flushing and the use of water in construction or meter calibration shall be metered or estimated as appropriate to assist in determining actual demand. Volumes flushed to waste shall be reported on the Town's Water Supply Annual Statistical Report.

Performance Standard for Residential Per Capita Water Use

Residential Per Capita Water Use shall not exceed 65 gallons per day.

North Reading shall report its residential gallons per capita per day (rgpcd) and the calculation used to derive that figure as part of its Annual Statistical Report. The rgpcd is the total volume of residential water use in gallons divided by the population served. The source of the data used to establish the service population and the year in which this data was developed shall be provided. If North Reading fails to meet the performance standard for keeping residential per capita water use at or below 65 gallons per day, the Department may require the Town to implement restrictions on nonessential outside water use that are more stringent than the restrictions set forth in Special Condition #5.

Performance Standard for Seasonal Water Use

Water use between May 1st and September 30th shall not exceed the seasonal cap of 79.56 million gallons from its Ipswich River Basin sources. To stay within this cap, North Reading shall keep its water use at or below an average daily volume of 0.52 MGD from its Ipswich River Basin sources from May 1st thru September 30th. If the Town exceeds this seasonal cap, the Department may require the Town to implement more stringent restrictions on nonessential outside water use than those set forth in Special Condition #5.

Performance Standard for Restricting the Use of Unregulated Irrigation Wells

The Department has been informed that within the Ipswich River Basin there has been an increase in the number of wells that are not subject to regulation under the Water Management Act and are used in whole or in part for irrigation purposes (hereinafter "unregulated irrigation

wells”). To avoid a further increase in the number of such wells, the Department determined that because of the stressed nature of the Ipswich River, it is appropriate that the communities located in the Ipswich River Basin make the use of unregulated irrigation wells subject to the restrictions on nonessential outside water use that are triggered by streamflow thresholds, that are required by this Modified Permit, and that apply to customers of the public water system.

The Department requires that the Town submit, with the Annual Statistical Report, a report documenting all actions taken by the Town to make unregulated irrigation wells subject to the restrictions on nonessential outside water use triggered by streamflow thresholds, that are required by this Modified Permit, and that apply to customers of the public water system, including any actions taken to enforce these restrictions against the owners or operators of unregulated irrigation wells and any fines or penalties imposed. If, in any calendar year beginning 2005, North Reading, on or before May 1st of that year, fails to restrict the use of unregulated irrigation wells as provided herein, the Town shall implement and enforce the restrictions on nonessential outside water use triggered by the streamflow thresholds set forth below in place of the streamflow thresholds set forth in Special Condition #5.

Period	Streamflow Trigger (3 consecutive days below threshold)	Flow Volume (USGS S. Middleton Gauge Station #01101500) *	Required Action
May 1 st thru September 30 th	< 0.56 cfs	< 24.9 cfs	Public Notice for Voluntary Water Restrictions
May 1 st thru– September 30 th	<0.42 cfs	<18.7 cfs	Implementation of a Total Ban on Nonessential Outside Water Use

cfs = cubic feet per second per square mile
cfs = cubic feet per second

7. Enhanced Water Conservation Plan

If, in any year beginning with calendar year 2004, North Reading fails to comply with the Performance Standards for Residential Per Capita Water Use and/or Seasonal Water Use, the Town shall develop and implement an enhanced water conservation plan for the following calendar year. For any year in which the Town is required to develop and implement an enhanced water conservation plan, the Town shall submit along with the Annual Statistical Report a report documenting all actions taken by the Town to develop and implement the enhanced water conservation plan.

The enhanced water conservation plan may include without limitation the items listed below:

- Adoption and enforcement of a bylaw or regulation to require moisture sensors or similar control technology on automatic sprinklers;
- Adoption and enforcement of a bylaw or regulation to limit the amount of land clearing for the creation of lawns;
- Adoption and enforcement of a bylaw or regulation to promote infiltration of stormwater to recharge groundwater at a rate 1.5 times the volume of recharge for new development projects and a rate of 1.0 times the volume of recharge for redevelopment projects for the appropriate hydrologic group as identified in Standard 3 of the DEP Stormwater Management Standards;
- Irrigation of recreational fields and public parks in accordance with the Water Resources Commission’s May 2002 Guide to Lawn and Landscape Water Conservation;

- Encouragement of the use of cisterns or rain barrels for outside watering thru the use of a rebate or at cost program;
- Enhanced public education outreach; and/or
- Purchase and/or development of out- of- basin sources.

At a minimum, the enhanced water conservation plan shall meet the requirements set forth below.

- If North Reading fails to comply with the performance standard for keeping residential per capita water use at or below 65 gallons per day, the enhanced water conservation plan shall include the implementation of a program to make water saving devices such as faucet aerators, low flow shower heads and toilet displacement bottles/dams available to its customers at cost and to provide rebates or other incentives for the purchase of low flow appliances (washing machines, dish washers and toilets) and the installation of moisture sensors or similar control technology on irrigation systems.
- Any enhanced water conservation plan required by this Modified Permit shall include (1) submission of a report that evaluates the effectiveness of a differential rate for seasonal water use as a tool for encouraging water conservation, (2) implementation of any changes to the current rate structure that will enable the Town to encourage water conservation such as in a differential rate for seasonal water use, and (3) notification to the Department of the changes along with the reason for these changes.

8. Control of Unaccounted for Water

At a minimum, the Town shall take the actions listed below to meet the performance standard for keeping unaccounted for water at or below 10%.

Metering

100 percent of the system (including public buildings and facilities) shall be equipped with meters of proper size and accuracy to measure water flow within 2% accuracy. On or before December 31, 2004, the Town shall submit to the Department a plan and schedule for ensuring that all service meters accurately measure within 2 % the volume of water used by the Town's customers. At a minimum, the plan shall include the provision of sufficient funds in the annual Water Department budget to recalibrate, repair or replace meters as needed. Thereafter, the Town shall implement the program.

The Town shall continue its ongoing program to inspect and replace individual service meters that are over ten years old.

The Town shall continue to calibrate all master meters on an annual basis.

Leak Detection

At a minimum, the Town shall conduct a full leak detection survey every three years. In addition, the Town shall perform a leak detection survey of its entire distribution system whenever the volume of unaccounted for water is greater than 10% of overall water use or whenever the percentage of unaccounted for water increases by 5% or more (for example, an increase from 3% to 9%) over the percentage reported on the Town's Annual Statistical Report for the prior calendar year. On or before December 31 of any calendar year in which a leak detection survey takes place, the Town shall submit to the Department for its review a report detailing the leak

detection survey, any leaks uncovered as a result of the survey or otherwise, and the estimated water savings as a result of the repair.

Leak Repair

The Town shall have repair reports available for inspection by the Department.

Leaks shall be repaired as soon as possible including leaks in any water pipes up to the service meter. In no event, shall any leak remain unrepaired for more than seven days after detection.

Water Audit

If the difference between the quantity of the raw water entering each of the Town's treatment plants and the quantity of the finished water entering the distribution system from that treatment plant exceeds 5%, the Town shall submit to the Department for its review and approval a scope of work and schedule for conducting a water audit of the treatment plant by December 31st of the following year. The scope of work shall call for the Town to evaluate operations at the treatment plant and recommend actions that can save water during the treatment process, and propose a schedule for implementing those actions. Thereafter, the Town shall complete the water audit in accordance with the scope of work and schedule approved by the Department and submit to the Department for its review and approval a report documenting the results of the water audit including a plan and schedule for reducing the volume of water lost during the treatment process. The Town shall implement the actions recommended in the water audit report as approved by the Department in accordance with the schedule approved by the Department.

9. Requirement to Report Raw and Finished Water Volumes

North Reading shall report on the Annual Statistical Report both the raw and finished water volumes for the entire water system. Raw water volumes shall also be reported for individual sources.

10. Commercial and Industrial Conservation Program

The Town shall implement a program to reduce water use by its ten (10) largest industrial and commercial customers. On or before March 1, 2005, the Town shall report on the effectiveness of this program. Upon receipt of this report, the Department will take whatever action it deems appropriate to promote the interests of the Water Management Act including without limitation requiring the Town to take additional actions to reduce commercial and industrial water use.

11. General Conservation Requirements

Pricing

The Town shall continue to ensure that water supply system operations are fully funded by water supply system revenues. The pricing system shall at least reflect the full cost of supplying water, including but not limited to:

- Administrative costs;
- Staff salaries, benefits, insurance and pension costs;
- Distribution system operation, maintenance and repair, including leak detection and repair costs and metering costs;

- Pumping costs and utilities;
- Treatment costs;
- Capital replacement costs, capital depreciation and debt service;
- Costs associated with water conservation programs and public education programs;
- Watershed or wellhead purchase and/or protection costs and land acquisition;
- Emergency planning.

Plumbing

- o The Town shall enforce the March 1, 1989 plumbing code for new construction and building rehabilitation where installation of water saving devices and low flow toilets is required.
- o Public buildings shall be retrofitted with water saving devices (such as faucet aerators, low flow shower heads, toilet displacement bottles/dams, low flow toilets, and automatic shut off faucets).
- o The Town shall submit to the Department, in writing by December 31, 2003, an accounting of all public buildings and their status with regard to retrofitting. The accounting shall identify any buildings that have not been retrofitted with water saving device and include a plan and schedule for completing the retrofit by December 31, 2005. Thereafter the Town shall implement the plan and schedule.
- o On or before December 31, 2005, the Town shall complete the retrofit of all public buildings and notify the Department in writing that the retrofit is complete.

Education

- o The Town shall continue its current public education program and consider additional educational activities. The Town shall also continue to provide customers of the public water system with data emphasizing:
 - all the costs of providing water;
 - that investments in efficiency and conservation will provide consumers with long-term savings;
 - how water use fluctuates throughout the year;
 - the environmental benefits of reducing water demand.

Bill stuffers with water conservation tips or water saving messages shall, at a minimum, be included annually with customer's water bills, or as a separate mailing. Copies of this information shall be made available to the Department upon request.

GENERAL CONDITIONS

1. **Duty to Comply** The permittee shall comply at all times with the terms and conditions of this Modified Permit, the Act and all applicable State and Federal statutes and regulations.
2. **Operation and Maintenance** The permittee shall at all times properly operate and maintain all facilities and equipment installed or used to withdraw up to the authorized volume so as not to impair the purposes and interests of the Act.

3. **Entry and Inspections** The permittee or the permittee's agent shall allow personnel or authorized agents or employees of the Department to enter and examine any property for the purpose of determining compliance with this Modified Permit, the Act or the regulations published pursuant thereto, upon presentation of proper identification and an oral statement of purpose.
4. **Water Emergency** Withdrawal volumes authorized by this Modified Permit are subject to restriction in any water emergency declared by the Department pursuant to MGL c 21G ss 15-17, MGL c 150 ss 111, or any other enabling authority.
5. **Transfer of Permits** This Modified Permit shall not be transferred in whole or in part unless and until the Department approves such transfer in writing, pursuant to a transfer application on forms provided by the Department requesting such approval and received by the Department at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.37.
6. **Duty to Report** The permittee shall submit annually, on a form provided by the Department, a certified statement of the withdrawal, such report to be received by the Department by January 31st of each year. Such report must be mailed or hand delivered to:

Department of Environmental Protection
Water Management Program
One Winter Street, 6th Floor
Boston, MA 02108
7. **Duty to Maintain Records** The permittee shall be responsible for maintaining monthly withdrawal records.
8. **Metering** All withdrawal points included within the Modified Permit shall be metered. Master meters shall be calibrated annually.

APPEAL RIGHTS AND TIME LIMITS

This permit modification is a decision of the Department. Any person aggrieved by this decision may request an adjudicatory hearing under the provisions of M.G.L. c. 30A. Any such request must be made in writing, by certified mail and received by the Department within twenty-one (21) days of the date of receipt of this modified permit. Only the portions of this Modified Permit that reflect a modification of the Town's current permit may be the subject of an appeal, as the period for appealing provisions within the Town's current permit has expired.

No request for an appeal of this permit shall be validly filed unless a copy of the request is sent by certified mail, or delivered by hand to the local water resources management official in the city or town in which the withdrawal point is located; and for any person appealing this decision, who is not the permit holder, unless such person notifies the permit applicant of the appeal in writing by certified mail or by hand within five (5) days of mailing the appeal to the Department.

CONTENTS OF HEARING REQUEST

310 CMR 1.01(6)(b) requires the request to include a clear and concise statement of the facts which are the grounds for the request and the relief sought. For any person who is not the permit holder, the request

must include a clear and concise statement of how that person is aggrieved by the issuance of this Modified Permit.

FILING FEE AND ADDRESS

The hearing request, together with a valid check, payable to the Commonwealth of Massachusetts in the amount of \$100 must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, Ma. 02211

The request shall be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below.

EXEMPTIONS

The filing fee is not required if the appellant is a city or town (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority.

WAIVER

The Department may waive the adjudicatory hearing filing fee for any person who demonstrates to the satisfaction of the Department that the fee will create an undue financial hardship. A person, seeking a waiver must file, together with the hearing request, an affidavit setting forth the facts which support the claim of undue hardship.

NO WITHDRAWAL AUTHORIZED HEREIN SHALL EXCEED THE SAFE YIELD OF THE BASIN AS DETERMINED BY THE DEPARTMENT.

NO WITHDRAWAL IN EXCESS OF 100,000 GALLONS PER DAY OVER THE REGISTERED VOLUME (if any) SHALL BE MADE FOLLOWING THE EXPIRATION OF THIS MODIFIED PERMIT, UNLESS BEFORE THAT DATE THE DEPARTMENT HAS RECEIVED A RENEWAL PERMIT APPLICATION PURSUANT TO 310 CMR 36.00.